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# SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Bloody Dummy**

See Page 282

A SCIENCE SERVICE PUBLICATION



## PUBLIC HEALTH

# Lasker Health Award

➤ A GOVERNMENT organization which has dispensed federal funds to aid medical and health research will receive one of the 1953 Lasker Awards at the American Public Health Association meeting in November.

The organization is the division of research grants, National Institutes of Health, Public Health Service, Department of Health, Education and Welfare, Bethesda, Md.

Ernest Allen, director of the division, will receive the award for his group.

Since its founding in 1945, the division of research grants has made a historic contribution to the support of decentralized medical research in a nationwide network of medical schools, hospitals, universities and independent investigators, the Lasker Foundation commented in announcing the awards.

The division's success is the result of a unique partnership with advisory councils of citizens, physicians and scientists. Its program has delivered concerted, unified attacks on the chief disease killers and cripples of our time, cancer, heart diseases

and mental illnesses, as well as on neglected and nonetheless crucial disease areas. Scientific brains are being subsidized in every part of the country; new answers are prolonging life expectancy for Americans every day. A foundation has been laid for fundamental preventive and curative answers tomorrow.

Research which made possible the fractionation of blood plasma, providing serum albumin for treating shock, gamma globulin for measles and polio, blood clotting substances for surgeons and many other aids to health from human blood, won the second group award for the University Laboratory of Physical Chemistry Related to Medicine and Public Health of Harvard University, Cambridge, Mass. Director of this laboratory until his death early this month (Oct. 1, 1953) was the world famous biochemist, Dr. Edwin J. Cohn.

Individual awards, each of \$1,000, illuminated scrolls and gold statuettes of the Winged Victory of Samothrace, will go to:

Dr. Felix Joel Underwood of Jackson, Miss., for three decades Health Commissioner of his state and responsible for trans-

forming a "backward" state into a national pacesetter in promoting public health.

Dr. Hans Adolf Krebs, University of Sheffield, England, 1953 Nobel laureate (see page 275).

Dr. Michael Heidelberger, College of Physicians and Surgeons, Columbia University, New York, for contribution leading to new knowledge of immunity to infectious disease.

Dr. George Wald, Harvard University, Cambridge, Mass., for outstanding achievements in explaining the chemistry of vision.

A posthumous award in public health achievement to Dr. Earle Bernard Phelps (1876-1953), research engineer at the University of Florida, Gainesville, and formerly professor of sanitary science at Columbia University, New York, in recognition of his pioneering and leadership in public health and sanitary science.

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## SURGERY

## Sterilize Instruments By Electric Current

➤ AN ELECTRIC current passed through boiling water solves the problem of sterilizing delicate instruments for eye operations without corroding their sharp edges.

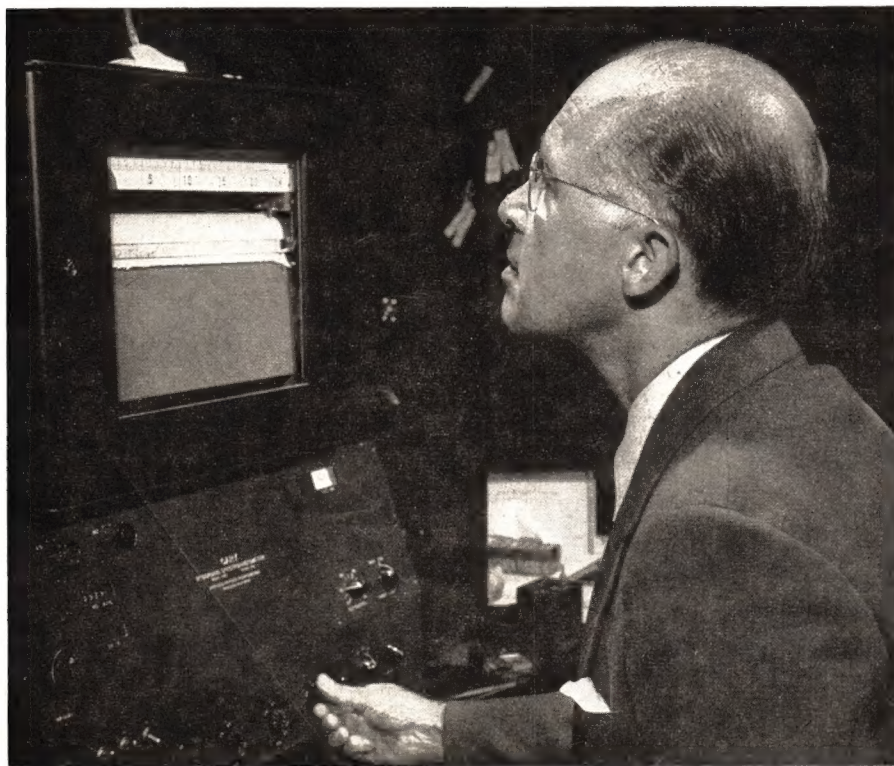
The method was announced by Dr. Walter Havener of the University of Michigan, Ann Arbor, Mich., at the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago.

Boiling is recognized as the most effective method of sterilizing instruments, but it has never been possible to boil sharp instruments because only a few minutes in the sterilizer spoils their sharpness, Dr. Havener pointed out. Chemical solutions of many kinds have been used and are fairly satisfactory, but these solutions do not completely destroy bacteria; the organisms may be inactivated, but are capable of reviving and multiplying, he said, when the disinfectant is removed.

Dr. Havener described the method he and Dr. C. A. Siebert, professor of engineering at the university, worked out as follows:

"The instrument is attached to the negative pole of a battery, and a separate piece of metal connected to the positive terminal is immersed in the same solution. The electrical current so oriented causes the surgical instrument to become a cathode and therefore resistant to electrochemical corrosion. Just as a lightning rod is the most effective way of removing electrons from an electrostatically charged cloud, so a sharp edge is the most effective part of the circuit in respect to releasing electrons. As a result of this fortunate circumstance, the sharper an edge is, the greater is the amount of corrosion resistance conferred upon it by this method of cathodic protection."

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**RECEIVES MEDICINE'S "OSCAR"**—Dr. George Wald, biologist of Harvard, will receive the Winged Victory gold statuette from the American Public Health Association for "outstanding achievements in explaining the chemistry of vision." It was he who discovered the role of vitamin A in vision and has reproduced in the laboratory all the chemical reactions of the eye in seeing in dim light.

The thin film of condensed moisture formed on concrete floors of basementless homes may rot or mildew rugs and carpets placed on those floors.



## MEDICINE

# Nobel Prize Shared

Research on the chemistry of living body cells wins high award for two German-born biochemists now working in England and the United States.

► **ENERGY, MADE** in the living cell from chemicals from food, is the key word for the fundamental researches which won the 1953 Nobel Prize in medicine for German-born Dr. Fritz A. Lipmann of Harvard University and Massachusetts General Hospital, Boston, and Dr. Hans Adolf Krebs, also German-born, now at Sheffield University, England.

The energy influencing role of the thyroid gland in the neck, best known to the layman as a goiter when it is diseased, is Dr. Lipmann's present research concern. But he is famous for earlier work in classifying various phosphate compounds in the body as high and low energy phosphates. An example of a high energy phosphate is the chemical, adenosine triphosphate. This chemical represents the energy reserve of muscle and is the closest known compound to mechanical work.

In 1938 Dr. Lipmann discovered a brand new phosphate compound, acetyl phosphate, which is the active form of acetic acid, best known to the layman in vinegar. Chemists had long suspected that a two-carbon compound was in the center of things but it was Dr. Lipmann who showed that this was so and what the compound was.

Dr. Lipmann and his co-Nobelists worked in the same building before World War II, the old Kaiser Wilhelm Institute which is now headquarters for the Free University of Berlin. But they worked in different laboratories.

An accident of birth helped Dr. Lipmann come to this country just two months before the start of World War II. When Mrs. Lipmann, at that time a fashion artist for Danish newspapers, went to the American Embassy for her visa, she could hardly speak a word of English. But at the Embassy she was told, "You are an American." She had been born in a small midwestern U. S. town, while her parents were on their way back to Berlin from a visit to this country. With her American citizenship, she and her husband were able to come to New York where Dr. Lipmann worked as research associate at Cornell Medical College until 1941.

Dr. Krebs is perhaps best known for the "Krebs cycle" of chemical steps by which sugar is utilized in the body for energy. But he also is famous for being the first to propose and prove, in 1932, another cycle of chemical reactions in body cells. This cycle concerns the body's synthesis of urea, the chemical in which nitrogen is eliminated from the body in urine. Dr. Krebs showed that this requires the combined action of the liver and the kidney.

In England with his English-born wife,

during World War II, Dr. Krebs contributed to the scientific food policy, including the national wholemeal loaf, that kept the English people well-nourished through the war years despite food shortages.

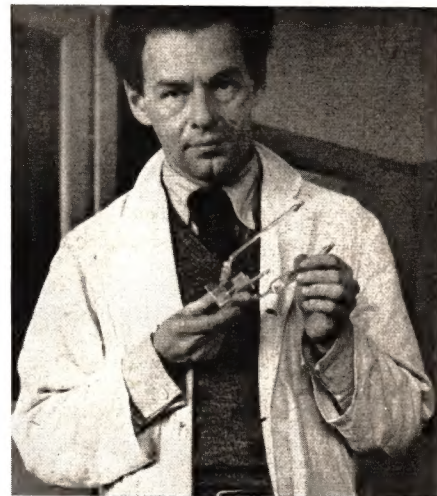
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## MEDICINE

## Body Type and Blood Tell Heart Prospects

► **PICKING THE** man or woman likely to have a heart attack and predicting the degree of heart artery disease long before symptoms or signs develop may be possible in the future by evaluating the person's body type and studying the pattern of fatty proteins in the blood.

Studies showing this possibility were reported by Drs. D. M. Spain, Victoria Bradess and I. J. Greenblatt of the Medical Examiner's Office, Westchester County, N. Y., and Beth-El Hospital, Brooklyn, at

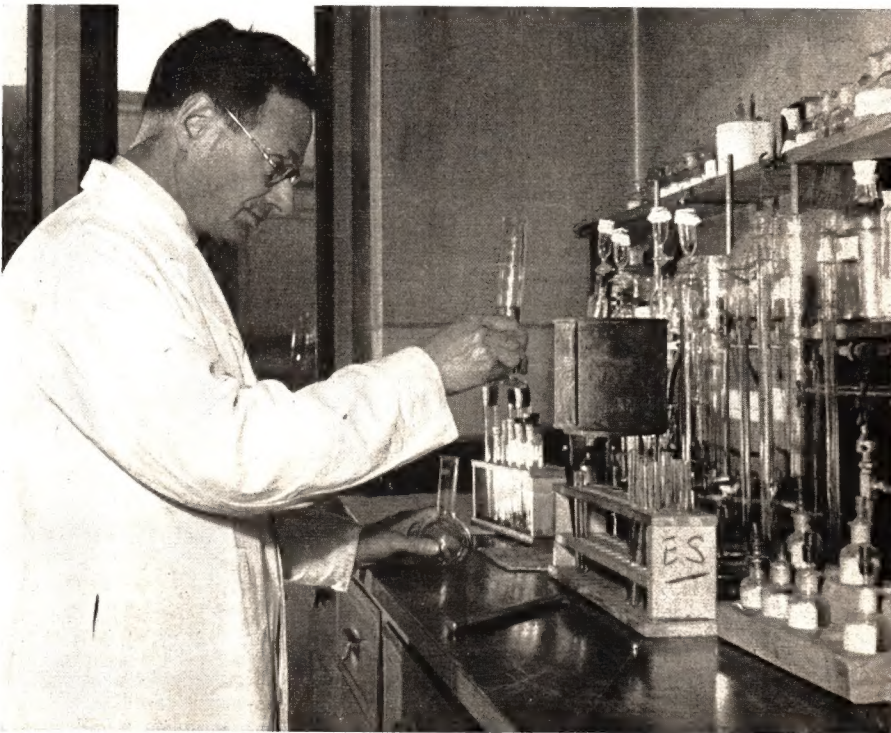


**NOBELIST**—Dr. Fritz A. Lipmann of Harvard University who shares with Dr. Hans Adolf Krebs the Nobel Prize in medicine for 1953. He was honored for fundamental research on the chemistry of body cells.

the meeting in New York of the Association of Life Insurance Medical Directors.

The well muscled athletic type has much more coronary artery disease than other body types of the same age group.

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**HONORED**—Dr. Hans Adolf Krebs, shown here at work in his laboratory at Sheffield University, England, will share the Nobel Prize in Medicine for 1953. He will also receive the Lasker Award, medicine's "Oscar," a Winged Victory gold statuette, at the annual meeting of the American Public Health Association in New York, on Nov. 12. He is honored for his research on the chemistry of body processes.



## ENTOMOLOGY

# Mark Locusts for Study

► SCIENTISTS STUDYING the movements of African migratory locusts have developed a method of marking the locusts with a spray-gun so that their movements in the solitary phase may be accurately plotted.

J. T. Davey reports from Kara in the French Sudan that locusts have been found soon after breeding in a semi-arid zone west of the outbreak area in Nigeria. During the months of November and December the number of locusts drops in this area, sometimes very suddenly.

Attempts to trace their later movements before the formation of marauding bands were severely handicapped by the inability of the scientists to mark the locusts in large numbers.

The new spray-gun method uses a hand pump and a trigger mechanism to shoot a fine jet of pigment in light oil. Using the gun, about 70 locusts can be marked in an hour. Six collectors can only mark 30 by hand in the same period of time.

Circumstantial evidence indicates that the

locusts move from the semi-arid zone to the flood plains of the Niger usually called the outbreak area. It is in the outbreak area that they form bands during the transformation phase of their development.

The new technique of marking should make it possible to trace completely all locust movements between the breeding area and the outbreak area. Mr. Davey points out that if this solitary migration can be established, it will help control authorities to estimate and anticipate the production of bands.

The arrival of a large number of locusts in the outbreak area does not necessarily give rise to bands since this depends on factors operating within the outbreak area which have not yet been studied.

Control of the African locust problem, however, will be materially aided, Mr. Davey concludes, in a communication to the British scientific journal, *Nature* (Oct. 17), if it is not restricted to the outbreak area.

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## RESOURCES

# Water Shortage Cause

► THE NATION'S water shortage is largely due to greatly increased use and not to a general drop in water resources.

Carl G. Paulsen, chief hydraulic engineer, U. S. Geological Survey, Washington, D. C., told the National Reclamation Association meeting in Reno that there is no evidence of a general decline in water resources.

"In the long run," he said, "we must face the reality that water resources remain practically constant, whereas the use continues to increase. Therefore, there must come a day when there will not be enough water for all the things we want to do with it."

The report on national water resources with particular emphasis on the drought-stricken areas of the West was prepared by Mr. Paulsen and A. Nelson Sayre, chief, ground water branch, Geological Survey.

Since the early days of westward expansion, engineers have warned that the increasing population and farm acreage would face water shortages. The great drought of the 1890's proved that rain does not follow the plow, and this lesson was reinforced by water shortages during the 1930's which created the Dust Bowl.

Periods of abundant water and drought seem to alternate, and Mr. Paulsen pointed out that the nation was fortunate World War II came during a period of abundant water.

In addition to the well known plight of farmers and some towns and cities in drought periods, industries are becoming increasingly worried about their water sup-

plies. Industries in Pennsylvania alone used 10 billion gallons of water daily in 1951 or about two-thirds as much water as the total daily output of all the municipal water systems in the United States.

The nation's first need in the area of water resources, Mr. Paulsen said, is a survey to determine the "location, amount and quality of water resources" throughout the nation area by area.

After such a survey has been made, the hydraulic engineer suggested that scientists could work out means of more efficient utilization of water and the possible artificial recharge of some ground water supplies.

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## ENGINEERING

# Bus Has One Engine Yet It Has Four Motors

► A GERMAN inventor has produced a city bus that has one engine, but which is driven by four motors—one to a wheel.

The central engine is a 175-horsepower, eight-cylinder diesel that drives an oil pump. The pump thrusts oil under pressure through flexible tubes to oil motors mounted on the wheels of the bus. The oil motors, in turn, drive the wheels.

This system has proved highly flexible since the diesel engine and its associated oil pump can be carried anywhere in the bus. It even can be towed in a trailer. Furthermore, the system provides stepless

speed control, since no gears are involved. To go faster, the motorman merely presses the accelerator down a bit.

To reduce his speed, the motorman takes his foot from the accelerator. Immediately the oil motors on the wheels begin braking the bus.

The oil motor also has proved successful in powering the propellers of ships. These propellers can be designed to change their position with respect to the ship so that they do the work of rudders. The ship's response to a turned propeller is said to be quicker than its response to a turned rudder.

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## PHYSIOLOGY

# Find Blood Platelet Types

► **DISCOVERY** OF groups and types for the mysterious platelets of the blood was announced by Drs. Mario Stefanini, Jyota B. Chatterjee, Gerald I. Plitman and William Damashek and Mrs. Irma B. Mednicoff of the New England Medical Center and Tufts Medical School, Boston, at the meeting in Chicago of the American Association of Blood Banks.

Platelets are colorless, disk-shaped bodies found in the blood of humans and all other mammals. They play a part in the blood clotting mechanism, but are still not well understood. Transfusions of platelets from blood may help save victims of any future atomic bomb attacks, it is thought, since such platelet transfusions have saved dogs and other animals from killing doses of X-rays.

The Boston scientists find that platelets can be grouped and typed as red blood cells are before blood transfusions.

The four groups and six types of platelets are sometimes incompatible, which suggests that if platelet transfusions are much used in future, their types will have to be identified before use.

A blood disease of new babies, thrombocytopenia, in which blood oozes out of the vessels under the skin, may be due to platelet incompatibility between mother and unborn baby, just as Rh incompatibility causes trouble of another kind for the baby.

Adults also suffer from the blood-oozing disease and the gradual failure of repeated platelet transfusions to help them may be due to incompatibility of the donor's platelets with the patient's.

There is no correlation between the four platelet groups in human blood and the familiar four groups of red blood cells.

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## PHYSIOLOGY

## Spleen, Glands Make Antibodies for Disease

► **THE FIRST** direct evidence that the spleen and lymph nodes, or glands as the layman calls them, produce disease-fighting antibodies is announced by Drs. William M. Hale, professor of bacteriology at the University of Tennessee Medical School, Memphis, Tenn., and Richard D. Stoner of the Medical Department of Brookhaven National Laboratory. The experiments were conducted at Brookhaven, under sponsorship of the U. S. Atomic Energy Commission.

For decades, bacteriologists have known that antibodies can be found in almost every organ of the body of immune animals. Where antibodies actually are formed, however, remained a matter of speculation.

At Brookhaven, the two bacteriologists

immunized a group of mice with the antigen, tetanus toxoid. An antigen is any substance, such as tetanus toxoid, which incites the production of specific antibody when injected into the body. Tetanus, or lockjaw, is an acute infectious disease caused by a toxin produced by the bacterial organism. A toxoid is a toxin whose poisonous action has been destroyed.

Once sufficient time had been allowed for the production of antibody (tetanus antitoxin) by mice, immunized but not irradiated, Drs. Hale and Stoner removed the spleen and lymph nodes from these animals. The tissues from immunized mice were implanted into non-immunized, irradiated mice. Antitoxin is an antibody formed in response to a toxoid capable of neutralizing a toxin.

The irradiated animals had been exposed to amounts of cobalt 60 gamma radiation known from previous experiments to be sub-lethal, yet sufficient to destroy the animals' ability to produce antibody. Since the radiation prevented antibody formation in the recipient animals, any antibody now formed could be produced only by the transplanted tissues while growing in the anterior chamber of the eyes.

The spleen and lymph node transplants produced significant amounts of antibody (antitoxin) under these conditions. In addition, intravenous injection of the recipient animals with the antigen, tetanus toxoid, greatly increased antibody formation by the tissues in the eyes of irradiated mice.

The two collaborators in the antibody experiments are now testing tissues other than spleen and lymph nodes to determine whether these, also, may be sites of actual antibody production. Bone marrow, liver, lungs, blood, central nervous system, and other sites have been mentioned as possibilities by various investigators.

The research with the spleen and lymph nodes was reported in the *Yale Journal of Biology and Medicine* (Sept.)

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## MEDICINE

## Warm Fast in Frostbite Cases

► **WARM FROSTBITTEN** toes, fingers, ears or other parts of the body quickly instead of thawing them gradually, Red Cross first aid instructors will start teaching.

The change is one of two major ones in first aid adopted by the American Red Cross on the recommendation of the National Research Council's Committee on Surgery.

The second major change is on use of the tourniquet. Apply close to and above the wound and do not release it, Red Cross first aiders will now be taught. Tourniquets used in first aid should be released only by a physician who is prepared to control bleeding if it starts again.

Previous teaching was to apply tourniquets high on the arm or thigh and release every 15 minutes.

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**LADYBUGS**—O. B. Lester, center, of Sonora, Calif., gathers hibernating ladybugs from the mountain canyons near his home and ships them by air to farmers and gardeners. When they wake up in the spring, they work for their new owner by destroying thrips, aphids and other plant pests. Each of the boxes shown contains about 700,000 ladybugs.



## MEDICINE

# Infection Cures Blue Baby

**Severe inflammation of the heart caused scarring and eventual closing of the opening left at birth between the pulmonary artery and aorta.**

► AN UNUSUAL case of a "blue baby" heart patient whose heart defect apparently was cured by a severe infection is reported by Drs. Noah H. Chiles, Harry L. Smith, Norman A. Christensen and Joseph E. Geraci of the Mayo Clinic.

About one in 100 patients recover spontaneously from the heart infection, subacute bacterial endocarditis, when this develops in a person with acquired heart disease or with a heart defect present at birth.

The patient reported by the Mayo doctors had the heart defect known as patent ductus arteriosus. The opening between the pulmonary artery and the aorta did not close at birth as it normally does. This patient did not show any signs of being a blue baby, however. The heart defect was not discovered until he was eight years old when a school nurse referred him to the doctor because she heard a to-and-fro machinery-like heart murmur which made her suspect heart disease.

For the next 10 years the lad was perfectly well. Then he had an attack of what was first thought to be influenza. Even

then, although he had fever, night sweats, lost appetite and weight and was pale and tired, he did not have such heart defect signs as blue skin, shortness of breath, cough or clubbed fingers or toes.

It was decided that he had subacute bacterial endocarditis complicating the heart defect. Since this was back in 1938, he was treated with sulfa drugs, but these did not help. For a year and a half he was very sick, but in 1941 began gradually to get better. In 1942 he was well enough to risk having his severely diseased tonsils removed.

Since 1945 he has had no heart murmurs and has been perfectly well. His heart is normal in size. He carries on with his work as manager of a lumber company without trouble.

Apparently the severe inflammation of the heart was so extensive that it caused scarring and eventual closing of the opening between the pulmonary artery and aorta.

Details of the case were reported at a staff meeting of the clinic.

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## MEDICINE

# Cancer Cure Sought

**Byproduct of penicillin manufacture, formerly thrown away, to be tested as possible "selective lethal factor for malignant cells."**

► ARE PENICILLIN manufacturers throwing down the drain a chemical with a one-in-100 chance of curing cancer?

Dr. Ivor Cornman of George Washington University and the American Cancer Society, which supports his work in part, think they are. They held a press conference in Washington to explain the situation and, apparently, with the hope of spurring manufacturers to supply Dr. Cornman with more of the material for his research.

On the other side of the picture, SCIENCE SERVICE learned the following:

Manufacturers would have to invest from \$20,000 to \$60,000 or stop normal penicillin production for several months. Then, because strains of penicillin change, they might not get the material Dr. Cornman wants. And if they did get it, the odds still are, as Dr. Cornman says, 100 to one against it ever becoming a cure for cancer. Furthermore, other antibiotic material, al-

ready available in pure crystalline form, has been reported showing similar or greater anti-cancer activity in some experiments.

The unidentified chemical from penicillin waste which Dr. Cornman wants will, in test tube experiments, kill cancer cells without killing normal cells. It merely slows the growth of the latter. Dr. Cornman calls it the "selective lethal factor for malignant cells."

In 1944 Dr. Cornman, then working with Dr. Margaret Lewis at the Wistar Institute, Philadelphia, reported that penicillin had this selective lethal effect on cancer cells. Hopes were pretty high, because a chemical of this sort had long been and still is a goal of cancer fighters.

But penicillin in those days was relatively crude and impure. When manufacturers changed their methods to produce a purer penicillin, the material lost its anti-cancer activity. Ever since, Dr. Cornman off and

on has been looking for the anti-cancer material.

Two pharmaceutical houses have supplied Dr. Cornman with material for his latest experiments. Using a process called counter-current distribution, they broke their penicillin waste into some 20 fractions. Of these, five showed anti-cancer activity. But the amount of material Dr. Cornman got was so small he could not even try it in mice with cancers, much less test it for toxicity or have its chemical composition studied.

He and the American Cancer Society are still hoping to get more of the material.

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## MEDICINE

# Measure Legs to Detect Dangerous Vein Clots

► A GROUP of 369 healthy, professional bus and truck drivers have had their calf girths measured to help doctors learn more about fighting dangerous blood clots in the lungs.

Surprisingly, these men who use the right leg 99% of the time but the left leg only 48% did not have any greater difference in calf girth size than other groups of normal men measured. The right calf girth was larger than the left in both the truck and bus drivers and the healthy men of other occupations.

In healthy women measured, however, the girth of the right calf measured just about the same as that of the left calf.

The studies are reported by Dr. Albert Damon of Columbia University's College of Physicians and Surgeons, New York, and Dr. Ross A. McFarland of Harvard School of Public Health, Boston, in the *Journal of the American Medical Association* (Oct. 17).

Reason for their study is that calf measurements can be valuable for detecting early thrombophlebitis, or clots in leg veins, which in turn may herald fatal clots in lung arteries or hidden cancer.

The doctors hoped to get a basis of normal differences in left and right calf girth from which to judge abnormal differences in patients. They report that, for practical purposes, if a man's right calf measures 15 millimeters larger or smaller than his left, and a woman's 12 millimeters larger or smaller, it points to a diseased condition. (One millimeter is about four hundredths of an inch.)

Such measurements, the doctors point out, may also be valuable in diseases of nerves and muscles and in cases of bone or joint damage from disease or injury. On this point they state:

"In poliomyelitis, arthritis, osteomyelitis and the muscular atrophies and dystrophies, such measurements can help diagnose current or previous disease, the extent of damage, and the progress of disease or therapy."

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The cheetah, a leopard-like animal, can cover 70 miles of ground an hour.



## ASTRONOMY

# Plan National Telescope

Observatory will probably be located in Southwest because of this region's excellent observing weather. To be cooperative.

► PLANS FOR a national telescope and observatory, the first of its kind in the United States, are being mapped by astronomers. The observatory would be jointly run by several institutions.

It would probably be located in the Southwest, since most astronomers agree this region is tops for good observing weather. Such a national observatory would give astronomers from all parts of the country much better facilities for studying the universe than their institutions could individually afford.

Exactly what location and what size telescope, or telescopes, would be best are the two main issues astronomers across the country are deciding. Some of them have already submitted their recommendations to Dr. John Irwin of Indiana University. He is chairman of the committee set up by astronomers, during a conference at Lowell Observatory, Flagstaff, Ariz., to cooperate with the National Science Foundation con-

cerning the possibility of building such a cooperative observatory.

Whatever the size of the telescope or telescopes, the proposed observatory is expected to give particular emphasis to photoelectric measurements of stars and other celestial objects, although it would also be available for possible expansion in general astronomical research.

Besides visual observations and the portraits of the heavens made on photographic plates, astronomers are now using photoelectric effects to probe the universe around us.

Radiation from the stars is caught in a wider range of wavelengths photoelectrically than with the eye or photographically. The star's light is focused on light-sensitive materials that then emit a stream of electrons which vary with the light's intensity. Photographic plates and electronic devices are used to record the electron stream.

Opinions vary concerning the best size

for a telescope to be used for photoelectric observations. Some astronomers favor a relatively large telescope, such as one with a 50-inch mirror, having a variety of instruments to be used with it. Others favor one or more smaller telescopes, 20 to 36 inches in diameter.

Even though most astronomers agree that somewhere in the Southwest would give the greatest amount of good observation time, the exact location is still to be decided. They started to discuss concrete plans after the National Science Foundation asked:

What are the research needs in photoelectric astronomy?

What are the technical requirements to meet such needs?

What is the best location for such an observatory?

To answer these questions, the astronomers at the Flagstaff conference asked the National Science Foundation to set up an investigating committee, whose formation is expected to be announced within a month.

Although the Naval Observatory in Washington, D. C., is legally recognized as the official observatory for the United States, the lights and weather of the nation's capital make good seeing difficult, and astronomers at the Observatory for several years have requested funds from Congress to move some of their equipment to the Southwest. Two years ago, a site near Flagstaff, Ariz., was selected, but no money has yet been granted for such a move. If and when the Naval Observatory equipment is moved, it is expected to be an entirely separate operation from the proposed national observatory.

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## MEDICINE

## Drug to Calm Blood Pressure Patients

► FIRST REPORTS of tests of a drug from the tropical plant, *Rauwolfia serpentina*, show that it calms high blood pressure patients as well as lowering blood pressure.

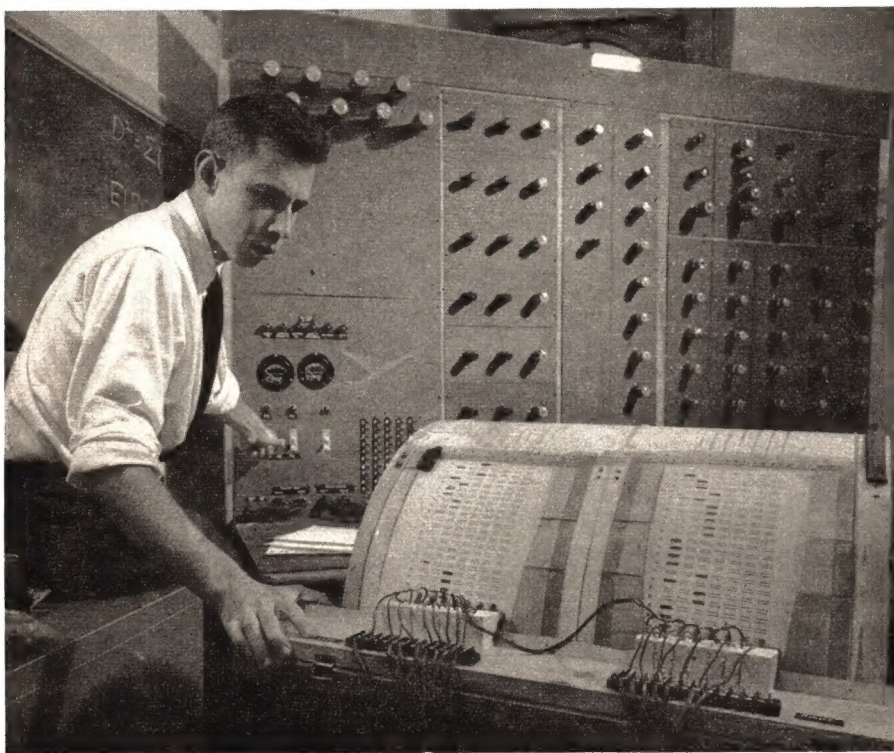
This calming or tranquilizing effect is greatly welcomed by the patients, Dr. Emil Schlittler of Ciba Pharmaceutical Products, Inc., points out.

The drug is called Serpasil by Ciba. Its chemical name is reserpine. While still undergoing clinical testing in this country, it has been introduced in Germany and will be marketed in Switzerland this month.

Ciba chemists who last May announced extraction of the drug in pure crystalline form now announce that it is an ester-alkaloid which can be hydrolyzed to give reserpine acid, trimethoxy benzoic acid and methanol. Reserpine acid is a pentacyclic compound containing both harmine and isoquinoline radicals. The exact structural formulas for reserpine acid and reserpine have not yet been completely worked out.

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Deliberately set incendiary fires accounted for one-third of the nation's 128,000 forest fires in 1952.



**IDIOT BRAIN**—Now an electronic brain that is stupid in the sense that it can solve only one type of problem. The machine, EPAC, is demonstrated by its inventor, graduate student Frank Rosenblatt of Cornell University who is using it in a psychological research problem. The machine compares the answers given by 200 persons to each of the questions in a series of psychological tests.



## ENGINEERING

## Coal Pipeline Tests Termed "Promising"

► A PIPELINE for transporting coal over long distances has been successfully tested and found promising, George E. MacDonald New York engineer, told the American Society of Civil Engineers meeting in New York.

Coal was crushed finely, immersed in water and pumped through the line in tests completed by the Pittsburgh Consolidation Coal Co. It was estimated that such a line linking Cadiz, Ohio, to Lake Erie, more than 100 miles away, might deliver coal \$1.00 a ton less than the \$2.75 per ton it now costs to ship the fuel the same distance by rail.

Mr. MacDonald pointed out that "big-inch" oil pipelines were the engineer's answer to the problem of finding more economical means of mass oil transportation. In their few short years of existence, oil pipelines have probed through the earth until now they form a network of 163,000 miles. Another 10,000 miles are slated to go into operation this year.

Pipelines for natural gas also have grown rapidly. From 1936 to 1951, total gas-pipeline mileage jumped from 55,000 to 118,000.

Science News Letter, October 31, 1953

## TECHNOLOGY

## Auto Oil Cleanses Sludge From Engines

► AN OIL to keep automobile engines free of damaging sludge, carbon deposits and varnish has been developed by engineers of The Texas Company.

It has a special built-in "detergent" action aimed at clearing materials from moving engine parts that would scar them, and shorten their life. The oil is said to promote efficient operation of some of the new valve-lifting devices now installed in modern auto engines.

The Gulf Oil Company in Pittsburgh has reported that it has developed a new oil for motorists whose cars balk at starting in 30-degree-below-zero weather.

Designed to work where temperatures hover below 10 degrees Fahrenheit, the new oil's improved viscosity permits the engine to turn over easily on cold winter mornings, reducing the electrical drain on the battery.

The oil is said to be fortified against evaporation on warmer days or during hard winter driving. This has been the chief drawback of many lightweight oils used to date in the frigid areas of Montana, the Dakotas, New England states and Canada. Evaporated oil leaves the engine unprotected against heavy wear.

In general, producing oils for use in cold climates is done by dewaxing the oil at a very low temperature. The oil is first diluted, then refrigerated. Wax crystals form in the cold lubricant and can be filtered out.

Additives also are used to keep wax from

forming large crystals, although small crystals will form. Small crystals, however, are not as objectionable as large ones.

Solvent refining provides petroleum engineers with another tool for making cold-weather oil. In this process, the elements in the oil that become gummy at cold temperatures are removed, leaving that part of the oil which is not sharply affected by the temperature.

Science News Letter, October 31, 1953

## MEDICINE

## Radioactive Gold Helps Heart Complication

► GOOD RESULTS in the first reported use of radioactive gold injections for cancer patients whose hearts are affected by the disease are announced by Drs. William B. Seaman, Alfred I. Sherman and MacDonald Bonebrake of Washington University School of Medicine, St. Louis, in the *Journal of the American Medical Association* (Oct. 17).

In this particular complication of late cancer, fluid accumulates in the sac containing the heart. In one of the patients reported, this had resulted in an enlarged heart with poor pulsations, blue skin, distended veins and such disturbed breathing that the patient had to sit up all the time.

Within a week after injection of the radioactive gold, the patient had improved enough to leave the hospital. Reexamination 10 weeks later showed her heart had returned to normal size and was functioning well. She had no more of the breathing trouble except a mild amount of breathlessness when exerting herself physically. Ankle swellings had gone away. Four and a half months later she had held this improvement.

The radioactive gold treatment also gives relief of symptoms in about three-fourths of late cancer patients troubled with fluid accumulations in the chest and abdomen. In reporting their cases, the St. Louis doctors point out that the treatment is not a cure for the cancer, that not every patient with fluid accumulations (dropsy in lay language) is a candidate for the treatment, and that it must be given in the hospital where radiation hazards can be guarded against.

Science News Letter, October 31, 1953

## SAFETY ENGINEERING

## Safety Engineering Fails To Pace Technical Gains

► PROGRESS IN engineering safety has lagged far behind the 20th century's progress in technology, John J. Ahern, Illinois Institute of Technology, told the National Safety Congress meeting in Chicago.

He said advances in the field of safety research lag the farthest behind progress made in other engineering fields.

Colleges should stimulate safety-consciousness in engineering students to help raise safety standards in industry. Each new technological advance, he said, brings on more safety problems.

Science News Letter, October 31, 1953

# IN SCIEN

## BIOCHEMISTRY

## Antibiotics Make Silkworms Grow, Too

► SOME OF the antibiotics, so-called mold remedies for germ diseases, can make silkworms grow faster, just as they speed growth of cattle, chickens, and pigs.

However, the faster-growing worms produce less silk. Silk production can be speeded along with growth, however, if enough extra nitrogen from a high quality source, such as the milk protein, casein, is fed with the antibiotic.

Experiments showing this are reported by Drs. M. R. Venkatachala Murthy and M. Sreenivasaya of the Indian Institute of Science, Bangalore, in *Nature* (Oct. 10).

Aureomycin and chloromycetin, they found, stimulated silkworm growth but terramycin, either alone or with amino-acid mixtures to supply nitrogen, did not show any effect on growth or silk production.

Science News Letter, October 31, 1953

## MEDICINE

## New-Old Drug Helps In Pregnancy Toxemia

► A NEW-OLD drug gives promise of helping control toxemias in expectant mothers, Dr. Edward Meilman of Beth Israel Hospital and Harvard Medical School reports to the *Journal of the American Medical Association* (Oct. 10).

The drug is protoveratrine, an alkaloidal chemical from *Veratrum album*, or the white hellebore plant. A crude preparation from the green hellebore, or *Veratrum viride*, was one of the oldest agents used to treat this pregnancy complication, Dr. Meilman points out. Difficulties in preparing reproducible extracts, among other things, led to the drug being almost abandoned for this use.

Now, however, chemicals from the plant can be obtained in crystalline form, making them more reliable for use.

Dr. Meilman used this new form of the old drug in treating 17 patients suffering from various forms of toxemia of pregnancy. In all cases, he reports, there was prompt control of headaches and eye disturbances, pain in the stomach region, convulsions and high blood pressure.

The drug does not replace such standard forms of treatment as rest in bed and restriction of salt, or sodium. Neither does it attack the cause of the condition. But by reducing blood pressure and relieving other symptoms, it helps keep the mother in condition to carry her baby until it is big enough to have a fair chance of surviving.

Science News Letter, October 31, 1953



# E FIELDS

## EVOLUTION

### 300,000,000-Year-Old Animal Gets First Study

► FOR 300,000,000 years the horseshoe crab has been neglected by evolution and zoologists.

One of the most common of living fossils, animals which have resisted evolutionary change for millions of years, its shell is seen by almost every beginning zoology student. Yet no zoologist has ever seriously studied it.

Carl N. Shuster Jr., a zoology instructor at Rutgers University, New Brunswick, N. J., decided five years ago that if evolution wouldn't help the horseshoe crab he would.

Struck by the scientific neglect, the young zoologist set out to trace the natural history and development of *Limulus polyphemus* during his summer vacations and after his classes.

His investigation has not turned out to be easy. At every step he discovers new gaps in the story to be filled by patient scientific study.

The horseshoe crab, incidentally, is not a crab at all. It is more closely related to spiders and scorpions than to its underwater neighbors. It is a frightening sight at first glance with a heavy armored shell, spear-like tail and six pairs of clawed legs. This, however, is mostly window-dressing since the tail is not an effective weapon and the claws are smooth and very weak.

Science News Letter, October 31, 1953

## NUTRITION

### Protein-Rich Food Out of Cottonseed

► THE LOWLY but protein-rich cottonseed may one day make the grade as a main course at the dinner table . . . at least it will if meat's hard to get.

Tasty recipes using cottonseed as a main ingredient are the result of work at the Chemurgic Research Laboratory of Texas A. and M. College, College Station, Dr. W. W. Meinke reports. Ground to a meal and then fermented with parched wheat, cottonseed turns into a meat-flavored sauce. Passed through a salt solution process and mixed with lactic acid, the seeds yield a cheese-like whey. Roasted like nuts, the kernels become the chief ingredient in cottonseed candy.

Cottonseed is high in protein. With the nation's population increasing and its land reserves decreasing, the use of all plant protein sources becomes highly desirable. Only 40% to 50% of the available protein in plant life is converted in meat consumption. On the other hand, the direct release of plant proteins retains from 80% to 90% of

the available protein for the nation's food supply.

Cottonseed oil has long been used in the manufacture of oleomargarine and shortenings, and small amounts of cottonseed flour are used in bread, cookies and cakes. However, use of cottonseed as an edible product has always been restricted to small amounts because it contains a toxic ingredient called gossypol. Also, the cottonseed meats were affected by a purple discoloration. Now Dr. Meinke has developed methods by which to make the cottonseed thoroughly fit for large-scale consumption.

The final tests of the cottonseed products, of course, will be made only when the public has had a sample of them for judgment.

Science News Letter, October 31, 1953

## BIOCHEMISTRY

### Human Blood Fraction Dissolves Blood Clots

► A NEWLY-ISOLATED fraction of human blood can be used to dissolve dangerous blood clots within the veins, Drs. Eugene E. Clifton and Carlos E. Grossi and Miss Dolly Cannamela of Memorial Center for Cancer and Allied Diseases, New York, reported at the meeting of the American College of Surgeons in Chicago.

The blood fraction is called plasminogen. In trials on dogs, cats, white rabbits and monkeys it rapidly dissolved clots in the veins when the enzymes, streptokinase, streptodornase and trypsin, had failed.

Fear that the dissolution of the clots would free particles that would travel into the blood stream and block the lung veins was not borne out, they said.

The material, thus far, has been tried on human patients only as a local application for cleaning up the debris of wounds and ulcers.

Science News Letter, October 31, 1953

## PHYSICS

### Too Many Electrons Showering Down on Us

► TOO MANY electrons are showering down on us. At least there are too many of these tiny units of electrical charge to be explained by present theories, which hold that electrons are produced by cosmic rays smashing into the atmosphere high above the earth.

"Unknown particles or processes" must be involved, Prof. Kurt Sitte of Syracuse University, Syracuse, N. Y., says. His conclusion is based on studies made this summer at altitudes of 10,000 to 14,000 feet in Colorado.

Dr. Sitte is now a visiting professor at the University of Sao Paulo in Brazil. From January to March of next year, at Chacaltaya, Bolivia, 18,000 feet above sea level, he plans to try to find out just what particles or processes produce the electrons that cannot be accounted for by present theories.

Science News Letter, October 31, 1953

## ENTOMOLOGY

### Grasshoppers Damage Oklahoma Fall Wheat

► GRASSHOPPERS are still causing extensive damage. Fall wheat and alfalfa crops in Oklahoma are being attacked.

In addition, heavy and damaging populations of grasshoppers are reported in New Mexico, Utah and Oregon. The damage in Oregon so far this year has been light.

Reports to the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture show other insects damaging crops throughout the country include the southern masked chafer, *Cyclocephala immaculata*, a grub worm, which has destroyed some early planted wheat in several Kansas counties.

In Georgia and north Florida, the grassworm, *Mocis repanda*, has attacked small grain crops, grasses and lawns. The pecan weevil, *Curculio caryae*, has brought crop losses between 50% and 90% to early pecan varieties in Oklahoma. Damage to later varieties is estimated at 10% to 20%.

Arizona vegetable growers are erecting aluminum foil barriers around their fields in an attempt to halt the migration of the salt-marsh caterpillar, *Estigmene acrea*, across the fields. Some damage to castor beans by this insect is also reported near Stillwater, Okla.

Science News Letter, October 31, 1953

## PHYSICS

### Water, Other Liquids, "Torn Apart" by Sound

► SOUND IS being used to "tear apart" water and other liquids at the University of California at Los Angeles.

In a study of the tensile strength of liquids, William Galloway of the physics department induces sound into a fluid-filled glass sphere with a vibrator tuned to the resonance of the sphere. The sounds literally split the liquid apart, causing a cavity or giant bubble in the fluid.

Great pressures are generated around the cavity and when the sound is shut off the "walls" of water around the cavity collapse with tremendous force. Small microphones used in the experiment within the sphere are shattered by the force.

A similar phenomenon occurs from vibrations created by propellers of big ocean liners. The cavities collapse with such force that they make holes in propellers. After prolonged use propellers assume a spongy appearance from this effect.

The process by which the liquids are torn asunder isn't understood. Apparently it is related to the tensile properties of the fluids. It may be that a tiny, invisible air bubble is the basis of the process. When the water is expanded by the sound wave agitation, the air bubble may act like a pinpoint hole in rubber when the rubber is stretched.

In addition to water, benzene and salt solutions have been used in the study.

Science News Letter, October 31, 1953



## MEDICINE

# New Ways of First Aid

**Surgeons say leave the tourniquet on if you use one. Do not loosen it until doctor comes. Danish method for restoring breathing is now widely taught. Navy has life-like model.**

## See Front Cover

By JANE STAFFORD

► PROMPT FIRST aid to an auto accident victim or in drowning may save a life. And it may be your life that is saved.

Doctors and scientists are learning new and better ways that you and others can use in case of emergency. Everyone can learn what to do and not wait around for professional assistance while a life that might be saved is ebbing away. This is a startling fact: Each of us runs a 1-in-15 chance each year of being in an accident serious enough to cause disabling injury.

Here are some new procedures being taught in first aid classes today.

For doctors, there is a trend away from the use of blood plasma for patients in shock. Albumin from human blood is preferred. Dextran, one of the new blood expanders, is also being used increasingly, and other blood expanders are getting wider trial. This change is coming about for two reasons:

1. Blood plasma, life-saving though it can be, can and too often does carry the virus of one kind of hepatitis, or liver inflammation—jaundice to the layman. 2. Supplies of blood and plasma have never been large enough for the mass casualties expected in case of atomic attack, and the blood expanders have been developed and tested and found satisfactory for helping out.

Latest change in first aid procedures for the layman concerns tourniquets. A tourniquet is an instrument for compressing a blood vessel. In case of severe bleeding from an artery, the first aider may not be able to stop the bleeding, or to keep it stopped, by manual pressure alone, that is by pressing with his hands on the bleeding spot or the appropriate pressure point.

## Used to Fear Gangrene

For many years first aiders were told that if they applied a tourniquet, they must be sure to release it every 15 or 20 minutes. Otherwise circulation would be cut off so long that the affected part of the body, such as an arm or leg, would turn gangrenous and die.

Some surgeons, however, have been saying for years that it is a mistake to loosen the tourniquet. There is too much danger of bleeding starting again. So now the Federal Civil Defense Administration, on the advice of the committee on surgery of the National Research Council, recommends that a tourniquet should not be released,

regardless of how long it has been on, except by a doctor who is prepared to control bleeding by other means and to replace lost blood.

First aiders still will be cautioned not to use a tourniquet if they can stop bleeding by any other means. But surgical authorities point out that it is better to risk gangrene in a badly damaged leg or arm than to risk death from hemorrhage by removing the tourniquet. Properly applied, a tourniquet can be left undisturbed for three or four hours with little risk of gangrene.

To show how to stop bleeding and how to give other treatments to the severely injured, the Navy now has a life-size plastic manikin that actually "bleeds," shown on the front cover. The pretend blood is a solution of glycerine, water and vegetable dye.

## Presents Six Problems

The manikin's body is of plastic reinforced with Fiberglas, fabricated from a sculptured model, and positioned to facilitate the demonstration of various first aid problems. The "skin" over the basic body is fabricated from molds made from a human donor. The material is a vinyl (resilient) plastic cured in dry heat in the metal molds. The manikin represents a person suffering from a leg wound, an arm wound, a belly wound, a penetrating chest wound, a broken jaw causing bleeding from the mouth, and choking because his teeth were jarred part way down his throat.

These wounds give six first aid problems likely to be encountered in cases of emergency or disasters involving large numbers. The manikin was designed by Comdr. John Victor Niiranen, Dental Corps, USN, other members of the staff of the Naval Dental School, and William C. Young, a civilian employee of the audio-visual department, Naval Medical School, Bethesda, Md. It was made to help in teaching Naval dental officers who might be called on in non-dental emergencies.

To make the wounds more life-like, the "blood" is pumped by centrifugal pumps from a storage tank in the base of the manikin to the wounds. The rate of flow from each wound can be individually adjusted. The fluid is collected in drains and returned to the storage tank to be used over and over again.

In addition to the manikin, the Naval Dental School has a facsimile arm for teaching how to insert a hypodermic needle into vein, muscle, or under the skin; a neck for teaching how to open an obstructed airway;

and an abdomen and chest for other teaching problems. All of these are now in an exhibit fabricated by Rogal Models of Washington, D. C.

While these were designed for teaching Navy dental officers, the method could be used, Comdr. Niiranen points out, in civil defense and Red Cross teaching.

Persons who have been suffocated by gas or rescued from drowning accidents have a better chance of survival because first aiders now are being taught an improved method of giving artificial respiration, called the back-pressure arm-lift method. It was developed by Holger Nielsen of Denmark and used successfully in the Scandinavian countries for two decades before its official adoption in this country.

Here are directions for this life-saving method:

1. Place the subject in the face down, prone position. Bend his elbows and place the hands one upon the other. Turn his face to one side, placing the cheek upon his hand.

2. Kneel on either the right or left knee, at the head of the subject, facing him. Place the knee at the side of the subject's head close to the forearm. Place the opposite foot near the elbow. If it is more comfortable, kneel on both knees, one on either side of the subject's head. Place your hands upon the flat of the subject's back in such a way that the heels of the hands lie just below a line running between the arm pits. With the tips of the thumbs just touching, spread the fingers downward and outward.

## Rock Forward

3. Rock forward until the arms are approximately vertical and allow the weight of the upper part of your body to exert slow, steady, even pressure downward upon the hands. This forces air out of the lungs. Your elbows should be kept straight and the pressure exerted almost directly downward on the back.

4. Release the pressure, avoiding a final thrust, and commence to rock slowly backward. Place your hands upon the subject's arms just above his elbows, and draw his arms upward and toward you. Apply just enough lift to feel resistance and tension at the subject's shoulders. Do not bend your elbows, and as you rock backward the subject's arms will be drawn toward you. Then drop the arms gently to the ground. This completes the full cycle. The arm-lift expands the chest by pulling on the chest muscles, arching the back, and relieving the weight on the chest.

The cycle should be repeated 12 times per minute at a steady, uniform rate. The compression and expansion phases should occupy about equal time, the release periods being of minimum duration.



If you want to learn more first aid methods, call your local Red Cross about joining one of their classes.

Science News Letter, October 31, 1953

## ENTOMOLOGY

## New Mist Blower Passes Chemical-Spraying Tests

► A NEW spraying device designed by the U. S. Department of Agriculture has successfully passed rugged tests at the Connecticut Agricultural Experiment Station, New Haven, proving that it can treat small orchards with insecticides economically.

The 200-pound machine can be mounted on a farm tractor, small trailer or pick-up truck, and is highly maneuverable. By means of a powerful air blast, it delivers tiny particles of highly concentrated insecticides to small plants and trees.

Tests showed the machine is not suitable for treating shade trees more than 40 feet tall, but that it can easily handle nursery stock, row crops, grapevines and small fruits. It also can be martialled against insect pests and mosquitoes.

Mist blowers are said to hold an advantage over ordinary spray machines because mist blowers economize in chemical consumption and give better foliage coverage. This reduces labor needed for frequent refilling of the spray tank.

Science News Letter, October 31, 1953

## AGRICULTURE

## Iron Chemicals Produce Greener Trees and Plants

► IRON-CONTAINING CHEMICALS known as "chelating agents" can make pallid trees turn a rich green and cause plants to survive in barren soil with irrigation water previously too alkaline.

Drs. Arthur Wallace, C. P. North, A. M. Kofranek and O. R. Lunt of the College of Agriculture at the University of California at Los Angeles report that much of the pallor in trees growing in southern California and other semi-arid areas is due to a condition known as chlorosis, resulting from excessive lime in the soil.

Treating lime soils with these chemicals controlled the chlorosis effectively. The trees became green and stayed green for several months without additional treatment.

For ornamental plants the treatment is very economical. No economic data are available on the use with commercial fruit trees.

Technical nicknames for the "chelating agents" are EDTA, DTPA and HEEDTA. They should be thoroughly watered into the soil and then normal irrigating procedure followed. Excessive applications can result in leaf burning similar to that caused by excessive use of fertilizers.

Science News Letter, October 31, 1953



**WEIGHED IN THE AIR**—The clamshell bucket of ore being unloaded from this ship is weighed as it swings ashore by a new electrical method. The load weight is shown on an indicator in the operator's cab shown alongside the bucket. The total weight unloaded is also shown on a totalizing counter. The daily handling capacity of the crane is thus increased substantially.

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## NUTRITION

## Honey Used for Sugar Improves Baked Goods

► HONEY SUBSTITUTED for part of the sugar in commercial baked goods improves color, flavor and texture, research at the Kansas Agricultural Experiment Station, sponsored by the USDA, has shown.

Based on the results of the tests, tentative specifications have been drawn up for the honey most suitable for each type of baked goods. Since honey is a natural sweet, and therefore its properties vary widely, it was feared that such differences would prevent its wide use in commercial baking. The three-year study proved this fear was unfounded.

The research program was conducted to find a wider market for honey, and thus furnish an incentive to keep the beekeeper in business. Loren B. Smith and John A. Johnson of Kansas State College performed the experiments.

Science News Letter, October 31, 1953



### Ready for Spring

► NEXT SPRING'S Easter bonnets and dainty gowns are already being made, and shortly after Christmas they will be moving onto the merchants' shelves. But even the fabricators of fashions are not more forehanded than the herbs and shrubs and trees of the woodlands. Practically every flower and leaf that will gladden our eyes next April and May is already in place, and only awaits the signal that will be given by the returning sun and the warm spring rains.

Preparation for next spring's flowers, as a matter of fact, began immediately after last spring's flowers had faded, and in most plants went on even while fruits and seeds were ripening. The leaves of plants like dog-tooth violet and trillium, that stood all summer long with no flowers to grace them, were busy all the time making food and sending it down into underground bulbs, corms and rhizomes. In the meantime, buried growth-points were forming up into the beginnings of buds, enfolding the embryonic structures of another crop of flowers. When the new growing season comes on, the food reserves will be liquidated and poured into the task of speeding the unfolding of the new flowers.

Something of the same sort goes on all over the branches of woody plants that blossom early in spring, like dogwood and redbud, and the lilacs and forsythias of our gardens. In the axils of this year's leaves, or at the twig-tips, the buds of next year's growth form during the summer. Already in them are the beginnings of next spring's bloom.

Only by provisions like this can we have spring flowers at all. Flowers are expensive things: they need a great deal of food for their structure, and more for the energy expended in the rapid process of blossoming. Most plants have to make their own food, which is the job of mature leaves. If flowers come before the leaves, or while the leaves are young and small, the food will have to be stored ahead of time.

The whole process of forcing flowers, so that we have a foretaste of spring even in

winter, is based on this fact. We bring bulbs or cut branches indoors, giving them as nearly spring-like conditions of temperature, moisture and light as we can provide. These stimuli cause the unlocking of the natural food cupboards, and release the chain of events that ends in the early unfolding of the flowers.

Science News Letter, October 31, 1953

## PHYSICS-ENGINEERING

## Full-Scale Atomic Reactor Ready in 1956-7

► IN 1956 or 1957 some 60,000 kilowatts of electrical energy produced by a full-scale atomic reactor will be the first major peaceful production of atomic energy.

When Commissioner Thomas E. Murray of the Atomic Energy Commission made known in a Chicago speech that this atomic power plant is under construction, it became the fourth major effort of the AEC in the power field. It will be installed at some atomic energy plant.

Three atomic power plants for submarines are well along, one by Westinghouse which is to propel the Nautilus, and two by General Electric, one of which is a land-based prototype and the other to be placed in the Seawolf.

Two other reactors are producing power, somewhat incidentally: the breeder reactor in Idaho and the homogeneous reactor at Oak Ridge.

The new reactor and prime bid for peaceful use will be a Westinghouse production. It is the power plant that was originally planned for a Navy aircraft carrier. Congress authorized the AEC to proceed with a peaceful application of this reactor plan when the Navy decided not to go ahead.

A pressurized water reactor, the new 60,000 KW job is somewhat like the other Westinghouse atomic "engine" which uses water for moderator and coolant. The two General Electric power plants use liquid sodium metal as the heat transfer medium.

Private industry is not yet ready to enter into full-scale atomic power reactor construction as a risk venture, even if the atomic energy law were modified. For this reason, the government is taking this major step in atomic power.

Science News Letter, October 31, 1953

## UNITRON

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# • Books of the Week •

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

**THE ANNALS OF THE CAKCHIQUELS**—Translated from the Cakchiquel Maya by Adrian Recinos and Delia Goetz—**TITLE OF THE LORDS OF TONICAPAN**—Translated from the Quiche text into Spanish by Dionisio Jose Chonay, English Version by Delia Goetz—*University of Oklahoma Press*, 217 p., illus., \$3.75. Two of three outstanding literary works which throw the most light on the early American people.

**APPLIED ELECTRON MICROSCOPY**—Robert B. Fischer—*Indiana University Press*, 231 p., illus., \$4.85. The first electron microscopes in this country were made only about 12 years ago. Now electron microscopy is an important phase of many sciences. Other new types of microscopes are also covered.

**AROUND THE WORLD ON \$80**—Robert Christopher as told to Erik James Martin—*Henry Holt*, 208 p., illus., \$3.00. A chatty book by a photographer who also illustrated it.

**COLLECTING COCOONS**—Lois J. Hussey and Catherine Pessino—*Crowell*, 73 p., illus., \$2.00. Instructions for a very interesting hobby for young children.

**EARTHWORMS**—Dorothy Childs Hogner—*Crowell*, 51 p., illus., \$2.00. Introducing young boys and girls to a very important tenant of the garden.

**ELECTRICAL METHODS OF BLOOD-PRESSURE RECORDING**—Frank W. Noble—*Thomas*, 56 p., illus., \$3.00. Discussing the hydraulic and electric systems which have been used in manometers of the diaphragm type.

**FILMS IN PSYCHIATRY, PSYCHOLOGY AND MENTAL HEALTH**—Adolf Nichtenhauser, Marie L. Coleman and David S. Ruhe—*Health Education Council*, 269 p., illus., \$6.00. Motion pictures are being used more and more as auxiliary aids in treating patients and as instruments for training professionals. This book lists and reviews those available.

**FLIGHT INTO SPACE: The Facts, Fancies and Philosophy**—Jonathan Norton Leonard—*Ran-*

*dom House*, 307 p., \$3.50. The author, who is Science Editor of Time Magazine, says: "It is hard to judge at this fast-changing stage which apparent facts are fancies, and which apparent fancies are really embryonic facts."

**FLYING SAUCERS FROM OUTER SPACE**—Donald E. Keyhoe—*Holt*, 276 p., \$3.00. The author, a retired Marine Corps officer, is convinced that the "saucers" are genuine objects and may carry visitors from other worlds. Air Force officers express doubt; the book will undoubtedly be controversial.

**THE FLYING YEARS**—Lamont Buchanan—*Putnam's*, 188 p., illus., \$5.00. A history, told in photographs, of man's conquest of the air, celebrating the fiftieth anniversary of the Wright brothers' flight.

**FUN WITH ASTRONOMY**—Mae and Ira Freeman—*Random House*, 58 p., illus., \$1.50. For young people, this book is generously illustrated with photographs by the author, using his young son as model.

**FUNDAMENTALS OF ECOLOGY**—Eugene P. Odum—*Saunders*, 384 p., illus., \$6.50. The first part lists principles and concepts, the second considers life as it exists in various types of environment.

**A HISTORY OF PSYCHOANALYSIS IN AMERICA**—C. P. Oberndorf—*Grune and Stratton*, 280 p., illus., \$5.00. A history written from the personal experience of the author who is a practicing psychiatrist.

**IS YOUR CHILD ALLERGIC?**—Herman Hirschfeld—*Nelson House*, 23 p., paper, 25 cents. Advice from a physician on how to recognize and treat the common allergies of babies, children and teenagers.

**THE LIVING U. S. CONSTITUTION**—Saul K. Padover—*New American Library*, 176 p., illus., paper, 35 cents. The story and background of this document with character sketches of the signers.

**LOOK TO THE SKY**—Frances George—*National Aviation Education Council*, 31 p., illus., paper, 30 cents. A picture book designed to introduce the principles of aviation and air travel to children in kindergarten and first grade.

**NEW FACTS FOR THE CHILDLESS**—Lawrence Galton—*Crowell*, 184 p., illus., \$2.75. Dr. Alan F. Guttmacher, in a foreword, assures us of the accuracy and understandability of this book which answers the questions of couples not blessed with children.

**NEW WORLD WRITING: Fourth Mentor Selection**—*New American Library*, 316 p., illus., paper, 50 cents. Presenting what the editors consider to be a cross section of current world literature.

**OPERATIONAL PHILOSOPHY: Integrating Knowledge and Action**—Anatol Rapoport—*Harper*, 258 p., \$3.75. Intended to provide a new bridge between the problems of philosophy and scientific thinking.

**PARKING AS A FACTOR IN BUSINESS: Part I, Attitudes Toward Parking and Related Conditions in Columbus**—C. T. Jonassen—*Highway Research Board*, 50 p., illus., paper, \$1.35. A study of why people are attracted to downtown stores or suburban shopping centers.

**RENEWING OUR CITIES**—Miles L. Colean—*Twentieth Century Fund*, 181 p., illus., \$2.50. Discussing the process and effects of urban growth and decay, and suggesting ways in which we can prune out the decay and nourish the growth toward consciously planned objectives of better living.

**REPORT ON THE ATOM: What You Should Know About the Atomic Energy Program of the United States**—Gordon Dean—*Knopf*, 321 p., illus., \$5.00. An outgrowth of the author's attempt to educate himself as quickly as possible about the program when he became AEC Commissioner. Explaining the atom and fission to the adult, intelligent layman.

**REPORTS ON PROGRESS IN PHYSICS: Volume XVI (1953)**—A. C. Stickland, Executive Ed.—*The Physical Society*, 407 p., illus., \$7.15. Reports from England of current research in a form suitable for the physicist who is not a specialist in the field covered.

**REPTILES AND AMPHIBIANS: A Guide to Familiar American Species**—Herbert S. Zim and Hobart M. Smith—*Simon and Schuster*, 157 p., illus., \$1.50. Attractive color illustrations and clear text help young people to identify these creatures. They are not recommended as pets.

**RESEARCH OPERATIONS IN INDUSTRY: Papers Delivered at the Third Annual Conference on Industrial Research, June 1952 With Selected Papers From the First and Second Conferences**—David B. Hertz, Ed.—*King's Crown Press*, 453 p., \$8.50. Covering the philosophy, costs, personnel, planning and other aspects of research administration.

**SCIENCE IN PROGRESS**—George A. Baitsell, Ed.—*Yale University Press*, 8th Series, 285 p., illus., \$6.00. Reports of active research areas based primarily on material presented during the past two years in Sigma Xi National Lectureships.

**SPECIFICATIONS FOR CALCULATING THE MEDIAN EFFECTIVE DOSE**—Carrol S. Weil—*Mellon Institute*, 7 p., paper, free upon request direct to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Based on the experience of the Mellon Institute Chemical Hygiene Fellowship.

**STANDARD METHODS OF CLINICAL CHEMISTRY: Volume I**—American Association of Clinical Chemists, Miriam Reiner, Ed.—*Academic Press*, 142 p., illus., \$4.50. Description of some of

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**TEXTBOOK OF GYNECOLOGY**—John I. Brewer—*Williams and Wilkins*, 532 p., illus., \$10.00. Based on the method used in instruction at Northwestern University Medical School—starting with the patient and her symptoms and progressing on to diagnosis and treatment.

**THIRTY-SIXTH ANNUAL REPORT OF THE NATIONAL RESEARCH COUNCIL OF CANADA 1952-53**—E. W. R. Steacie, president—*National Research Council of Canada*, 54 p., paper, free upon request to publisher, Ottawa 2, Canada. A review in non-technical language of the many research projects in process. In English and in French.

**TIGRERO**—Sasha Siemel—*Prentice-Hall*, 266 p., \$3.95. The author is said to be the only living white man who has fought jungle jaguars with only a spear. This is the romantic story of a Latvian hunter's life in the jungles of Brazil.

**THE TRACK OF MAN: Adventures of an Anthropologist**—Henry Field—*Doubleday*, 448 p., illus., \$5.95. The romantic autobiography of a distinguished scientist and his search since childhood for the origin of prehistoric man.

**WAYS OF MAMMALS: In Fact and Fancy**—Clifford B. Moore—*Ronald Press*, 273 p., \$3.50. Bringing together the most interesting and persistent myths, superstitions and misconceptions about mammals.

**WILD FLOWERS OF AMERICA**—Paintings by Mary Vaux Walcott and Dorothy Falcon Platt, text by H. W. Rickett—*Crown*, 71 p., 400 plates, \$10.00. Lovely full-color reproductions of paintings made directly from nature by the wife of the former secretary of the Smithsonian Institution.

**A WOMAN'S GUIDE TO FINANCIAL SECURITY**—Joyce Clarke and Sally Dickson—*Barrows*, 185 p., \$2.75. Advice to women on how to manage their savings so as to assure the greatest future benefits.

**WOOL AS AN APPAREL FIBER**—Giles E. Hopkins—*Rinehart*, 110 p., illus., \$1.50. Making public the scientific findings on the complicated structure and qualities of the wool fiber.

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## MEDICINE

### Advise Sitting Up to Give Blood for Bank

➤ **MANY BLOOD** donors prefer to sit up while their blood is being taken instead of lying down as is now customary. This donor preference, plus the saving in space when chairs are used instead of tables or beds, led Dr. R. O. Muether and his associate, B. Koster, of St. Louis to recommend the sitting up position in a report to the American Association of Blood Banks meeting in Chicago.

They found no appreciable difference in blood pressure, pulse rate or number of reactions between 85 donors who sat up and 105 who lay down while giving blood.

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## MEDICINE

# Drug Gives Asthma Relief

New preparation related to some of the anti-malaria drugs developed during the war gave complete long-lasting relief to fourth of 285 patients.

➤ **SUCCESS IN** treating asthma with a new drug related to some of the anti-malaria drugs developed during the war was announced by Dr. Charles F. Geschickter of Georgetown University Medical Center, Washington, D. C., at the meeting of the Maryland Academy of General Practice in Baltimore.

The drug was made by Dr. Leonard M. Rice, research associate at Georgetown, at Dr. Geschickter's suggestion. It is a 4-amino quinoline derivative. It has no short name as yet, though probably it will be given one when it goes on the market. So far it is not available commercially.

Dr. Geschickter has used it to treat 285 patients with bronchial asthma. One-fourth of the patients have had complete relief of symptoms for two to four years after treatment with the drug was stopped.

Results have been especially good in the 155 children. There were only 2.5% failures in this group. Among 50 young adults there were failures in 5% of the cases, and

in the group of 80 over 40 years old there were 10% failures.

The drug is both concentrated and fixed in breathing tissues where it acts both as a bronchial dilator and as an antihistamine. Observation of kind and site of action of some of the antimalaria drugs made during the war led Dr. Geschickter to believe a similar drug could be made to bring relief to asthmatics.

In all cases the quinoline derivative is given combined with an anti-allergy drug, theophylline. In acute attacks patients are also given another new drug made by Dr. Rice, theophylline diaminopropanol, which does not cause the nausea or other unpleasant side effects of theophylline itself.

The quinoline drug is usually given in capsules to be swallowed every day. Relief of symptoms in some cases comes very fast, in others the drug has to be taken for a longer period.

Dr. Rice has assigned patent rights on the new drug to the Geschickter Fund for Medical Research which is now planning for commercial production of it.

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## Questions

**ASTRONOMY**—Where will the national observatory and telescope probably be located? p. 279.

□ □ □

**ENTOMOLOGY**—How is the migration of locusts traced by scientists? p. 276.

□ □ □

**EVOLUTION**—What 300,000,000-year-old animal is at last being studied? p. 281.

□ □ □

**MEDICINE**—Should you leave a tourniquet on until the doctor comes? p. 282.

What should you do if your toes are frost-bitten? p. 277.

□ □ □

Who received the Nobel Prize in Medicine for 1953? p. 275.

□ □ □

**RESOURCES**—What is the cause of the nation's water shortage? p. 276.

□ □ □

**Photographs:** Cover, U. S. Navy; p. 274, Harvard University; p. 275, Harvard University and Lasker Foundation; p. 277, United Air Lines; p. 279, Cornell University; p. 283, Baldwin-Lima-Hamilton Corp.; p. 288, Good-year Tire and Rubber Co.

A weight saving of one pound in a jet engine's compressor rotor blade may save up to five additional pounds in supporting members.

Two gallons of modern gasoline are equivalent in power and energy to three gallons of 1925 vintage.

The axolotl, a salamander, eats more than its own weight in a single meal.

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# • New Machines and Gadgets •

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE NEWS LETTER, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 698. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

⚙️ **NON-ELECTRIC DOOR** chime sings out with two musical tones when the handle on the outside of the door is turned. Attached to the door, the chime set features a solid brass nameplate which can be used to identify the house residents.

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⚙️ **NEW STAND** converts home workshop portable drills into vertical drill presses quickly and easily. The stand takes  $\frac{3}{8}$ -inch and  $\frac{1}{2}$ -inch electric drills and can be fastened to a bench or wall. The drills can be raised and lowered by a lever handle, and can be adjusted for height and radial position.

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⚙️ **BATTERY ASSEMBLY** can be sliced like a banana to yield voltages up to 21 in 1.4-volt steps. Specifically intended for equipment designers and experimenters exploring the possibilities of transistors, the alkaline battery permits rapid assembly of power supplies not readily available with standard commercial batteries.

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⚙️ **NEW SHOE SOLE** is so light in weight that it will float in water, as shown in the photograph, because it contains millions of tiny air cells. The composition sole is



waterproof and is said to be much more flexible than its well-known predecessor.

Science News Letter, October 31, 1953

⚙️ **ELECTRIC CANDLE** emits soft light but without the hazards of fire or the annoyance of drippings. Powered by small, easy-to-obtain batteries, the candle is portable and can be of especial value to

churches, fraternal orders and schools. The color of the candle light can be changed with special disks designed for the device.

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⚙️ **HEAVY-DUTY RACK** for big books, catalogs and telephone directories is made of metal and has eight two-inch compartments with index tabs for the divisions. Desks are protected from scarring by rubber feet, and hand-holes in the end plates permit the rack to be carried easily.

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⚙️ **PINLESS DIAPER** ties on the baby, fitting securely and comfortably. The manufacturer reports the diapers go on without any folding, that they are light-weight, non-chafing and that they launder and dry quickly. A nylon model, available in white, pink or blue, is said to replace rubber pants.

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⚙️ **INDOOR TV ANTENNA** features two telescoping elements and a tuning knob that permits the user to "tune the antenna" to each channel so that the antenna always yields the best reception of which it is capable. Physically, the antenna has a heavy, padded base upon which a phenolic plastic ball is mounted. The tuning control is attached to the top of the ball.

Science News Letter, October 31, 1953

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## Do You Know?

Fire is known to cause one out of every 200 business failures.

The newborn opossum is smaller than a honeybee.

Buildings coated with paints having different kinds of bases show up in assorted ways on a radar screen.

A 1,000-year-old skeleton and a handsome, silver-inlaid Viking sword recently were unearthed southwest of Oslo.

Aircraft powerplants can be so powerful that control of the engine is a major problem; this particularly applies to ramjets.

"Presbyopia" is not a disease, but merely the farsightedness that accompanies aging of the eye; it usually begins to set in at the age of 45.

Open hearth furnaces are fired primarily with oil.